

Appl. No. 09/822,121  
Amdt. dated May 20, 2003  
Reply to Final Office Action of April 15, 2003

### REMARKS/ARGUMENTS

Applicants respectfully request entry of the above amendment and reconsideration in view of the amendment and the following remarks.

The status of the application is as follows. Claims 1-16 remain pending in the application.

Claims 1-3, 5-8, 10-15 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by US 5,686,957 to *Baker*.

Claim 4 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Baker*.

Claims 9 and 16 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Baker* in view of US 5,778,082 to *Chu et al.*

Applicants respectfully traverse the §102 and §103 rejections with the following arguments.

#### ***Rejections under 35 USC §102***

Claims 1-3, 5-8, 10-15 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by US 5,686,957 to *Baker*.

The Examiner alleges that *Baker* teaches a video conference system for locating the speaker comprising a stationary image pickup device, remaining motionless during operation, for generating image signals representative of an image; an audio pickup device for generating audio signals representative of a sound from an audio source; a processing means (*i.e.*, a multimodal integration architecture) for processing the image signals and audio signals to determine a direction of the audio source relative to a reference point, and to manipulate the video images to effectively provide at least one of variable pan, tilt, and zoom functions (for example, *Baker* col. 6 lines 25-28; and col. 9 lines 5-14). In *Baker*, note Fig. 2 where the transform processor engine correlates to the computer vision person detection system; and in Fig. 1, the audio processor

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correlates to the speaker detection system, and the microphone array correlates to the audio sound localization system.

Applicants respectfully contend that *Baker et al.* does not anticipate claims 1-3, 5-8, 10-15, because *Baker* does not teach each and every feature of independent claims 1 and 10, as amended herein. First, regarding claims 1 and 10 as amended herein, a video conferencing system is disclosed which comprises, *inter alia*, "an audio pickup device for generating audio signals representative of sound from an audio source, wherein said audio pickup device is configured to locate an audio source when said audio source is stationary and to track said audio source when said audio source is nonstationary". In contrast, *Baker* discloses an automatic audio controlled video camera steering system which includes "a plurality of microphones strategically positioned near a predetermined central location." (*Baker* col. 5, lines 25-26). Since the microphones are located in a central location, the location of the audio source is limited. *Baker* is completely silent regarding locations of an audio source when said audio source is nonstationary.

Second, regarding claims 1 and 10 as amended herein, a video conferencing system is disclosed which comprises, *inter alia*, "processing the image signals and the audio signals to determine a direction of the audio source relative to a reference point wherein the processing is adapted to track the direction of said audio source when said audio source produces sound and when said audio source does not produce sound." In contrast, *Baker* discloses an automatic audio controlled video camera steering system, including audio detection circuits to determine in which direction or in which segment of a panoramic image is contained the currently speaking participant. (*Baker* col. 9, lines 33-44). Since the microphones must first detect sound to enable the audio direction processor to locate an audio source, the ability to locate a silent audio source is nonexistent. Therefore, *Baker* is completely silent regarding tracking of an audio source when said audio source is silent.

Based on the preceding arguments, Applicants respectfully maintain that *Baker* does not anticipate independent claims 1 and 10, and that claims 1 and 10 are in condition for allowance.

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Since claims 2, 3, 5-8, and 11-15 depend from claims 1 and 10, Applicants contend that claims 2, 3, 5-8, and 11-15 are likewise in condition for allowance. Withdrawal of this rejection is respectfully requested.

***Rejections under 35 USC §103***

Claim 4 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Baker*.

Regarding claim 4, the Examiner alleges that *Baker* differs from the claimed invention in not disclosing that the integrated housing is portable. The Examiner further alleges that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Baker*'s system to be portable, since it has been held that making an old device portable or movable without producing any new and unexpected result involves only routine skill in the art. *In re Lindberg*, 93 USPQ 23 (CCPA 1952).

Applicants respectfully disagree with this assertion that it would have been obvious to combine the various elements of the system disclosed by *Baker* into a single integrated unit. For instance, Figures 1 and 1A, and the related description (col. 8, line 56 to col. 9, line 44) clearly show a variety of separate components. Further, the description of the layout of the microphones relative to the camera states "four microphones spaced apart which would be arranged concentrically about the lens and camera on a conference room table so that all of the participants in the conference will have audio access to the microphones." (*Baker* col. 9, lines 16-19). Applicants submit that these teachings in *Baker* in fact teach away from Applicants' portable, integrated housing feature.

Moreover, claim 4 must be read to include all the features of claim 1 and any intervening claims from which claim 4 depends. Therefore, Applicants respectfully submit that claim 4 would not be obvious in view of *Baker* because, as discussed *supra*, *Baker* does not teach or suggest either of "an audio pickup device for generating audio signals representative of sound from an audio source, wherein said audio pickup device is configured to locate an audio source

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when said audio source is stationary and to track said audio source when said audio source is nonstationary" or "processing the image signals and the audio signals to determine a direction of the audio source relative to a reference point wherein the processing is adapted to track said audio source when said audio source produces sound and when said audio source does not produce sound."

Based on the preceding arguments, Applicants respectfully maintain that it would not be obvious to one skilled in the art at the time the invention was made to derive Applicants' invention, as claimed in claim 4, from *Baker*. Withdrawal of this rejection is respectfully requested.

Claims 9 and 16 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over *Baker* in view of US 5,778,082 to *Chu et al.*

Regarding claims 9 and 16, the Examiner alleges that *Baker* differs from the claimed invention in not disclosing the use of an array of two microphones. The Examiner further alleges that it is notoriously old and well known in the art to use spatially separated microphones to obtain the direction or location of speech or other acoustic signals from a common sound source identifying acoustic received signals representative of the sequence of signals, and determining the direction of the source based upon the acoustic received signals, for example see *Chu et al.* *Chu et al.* also discloses it has applications to videoconferencing where it may be desirable to automatically adjust a video camera, such as by aiming the camera in the direction of a person who has begun to speak, for example see *Chu et al.*'s abstract, col. 1 lines 5-19, col. 2 lines 3-8. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify *Baker* to use an array of two microphones to obtain the direction or location of speech or other acoustic signals from a common sound source identifying acoustic received signals representative of the sequence of signals, and determining the direction of the source based upon the acoustic received signals to automatically adjust a video camera, since it would produce the same results with relatively fewer components (*i.e.*, microphones) and less cost.

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Applicants respectfully disagree with this analysis. *Baker* discloses an array of two microphones in claim 1 (col. 17, line 5). *Chu et al.* discloses an array of two microphones (*i.e.*, "a pair of spatially separated microphones") in its abstract. While both cited references disclose an array of two microphones, neither reference, taken alone or in combination, teach or suggest a video conferencing system comprising, *inter alia*, two microphones for generating audio signals representative of sound from a speaker, wherein said microphones are configured to locate a speaker when said speaker is stationary and to track said speaker when said speaker is nonstationary. Further, neither cited reference discloses a video conferencing system comprising, *inter alia*, a processor for processing video signals and audio signals to determine the direction of a speaker relative to a reference point, wherein said processor is adapted to track said speaker when said speaker produces sound and when said speaker does not produce sound. Rather, the cited references are drawn to determining the location of a speaker while the speaker is speaking. Neither cited reference teaches or suggests locating or tracking the speaker while the speaker is not speaking.

Based on the preceding arguments, Applicants respectfully maintain that it would not be obvious to one skilled in the art at the time the invention was made to combine *Baker* and *Chu et al.* and so derive Applicants' invention as claimed in independent claims 1 and 16. Since claim 9 depends from claim 1, claim 9 is interpreted as including all the features of claim 1. Withdrawal of this rejection is respectfully requested.

### Conclusion

Accordingly, based on the preceding arguments, Applicants respectfully submit that claims 1-16, and the entire application, are in condition for allowance and therefore request favorable action. However, should the Examiner believe anything further is necessary in order to place the application in better condition for allowance, or if the Examiner believes that a telephone interview would be advantageous to resolve the issues presented, the Examiner is invited to contact the Applicants' undersigned representative at the telephone number listed

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below.

Respectfully submitted,

Jack P. Friedman

By: Jack P. Friedman  
Reg. No. 44,688  
Schmeiser, Olsen & Watts  
3 Lear Jet Lane  
Suite 201  
Latham, NY 12110  
email: [jfriedman@iplawusa.com](mailto:jfriedman@iplawusa.com)

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